REMARKS/ARGUMENTS

Examiner's ruling with respect to the restriction of claims has been duly noted. Claims 21-37 have, accordingly, been canceled. A divisional application covering these claims will be filed at the appropriate time.

Reconsideration is requested of all rejections based on 35 U.S.C. 103:

For these rejections examiner has relied on Tretiakov in view of Yoshida. Examiner argues that Tretiakov describes our claimed process for making a multi-chamber chip with the exception of using two plastic sheets with different softening temperatures, the latter sub-process being taught, according to examiner, by Yoshida.

With regard to the process taught by Tretiakov, our claims 1, 7, and 14 (as currently amended) teach the following features that are absent from Tretiakov:

(1) flat bottomed depressions -- Tretiakov teaches conical depressions

(2) each depression having a depth no greater than 500 microns – Tretiakov teaches a depth no greater than 3,800 microns.

(3) at least one micro-channel being connected to each depression – Tretiakov makes no mention of micro-channels

(4) an array of heating blocks – Tretiakov teaches a single heating block

(5) just filling the depressions (through use of the micro-channels) – Tretiakov's samples occupy well under half the volume of his depressions (see his figure 2) and must be filled from directly above.

With regard to the sub-process taught by Yoshida, examiner argues that this reference teaches placing two sheets of plastic material over a mold, heating both sheets, applying pressure to the top sheet thereby forcing the lower sheet into the mold, cooling the sheets and then separating them.

There are several major differences between the present invention and that of Yoshida:

(i) Yoshida's top plastic sheet is actually a bag wherein is stored a third material in powder form. So Yoshida's process requires three materials where ours requires only two.

(ii) To work, Yoshida's process requires that said bag be filled with the third material each time it is used. Furthermore, if the bag is to be reused, the solid lump of fused material must be removed before the bag can be re-filled with the powdered form of the third material. In contrast, our top plastic sheet is available for re-use immediately following its separation from the bottom sheet. THIS IS ONE OF THE KEY FEATURES OF THE PRESENT INVENTION.

(iii) Yoshida's process features the use of a pressure that is high enough for it to be necessary to prevent any sideways flow of the bag. See seal ring 7 in both his figures 1 and 2. The present invention has no such requirement since the temperature to which the top sheet is heated, combined with the fact that the force applied to it is normal to its surface, allows said force to be transmitted to the first sheet, with negligible sideways expansion, while still permitting sufficient plastic flow of the top sheet (in the vertical direction) to force the bottom sheet into the mold.

(iv) There can be no plastic flow of the walls of Yoshida's bag while it is under pressure, otherwise it would burst. This implies that the extent to which it can force the bottom plastic sheet into very small depressions in the mold, such as, for example, micro-channels, is limited to features whose critical (i.e. minimum) dimension is greater than at least twice the thickness of the bag. The present invention has no such limitation.

(v) Yoshida's process requires that the bottom layer be melted while it is being forced into the mold. See line 6 of his CONSTITUTION together with his element 1 in his figure 1. This limits his choice of material for the bottom sheet since it must not bond to either the mold or the top sheet. In the present invention the bottom sheet does not melt.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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